

WE CLAIM:

1. A dynamic lateral stability device for footwear, the footwear having a sole assembly;
comprising:

a resilient bladder for containing fluid, said resilient bladder having a sole portion
5 adapted to be received by an opening in the sole assembly and that is adapted to be
positioned generally horizontally underneath a portion of a wearer's foot, and a foot
portion extending generally vertically from said sole portion and adapted to be positioned
to a side edge of a wearer's foot, said sole portion and said foot portion adapted to be
positioned at a metatarsal region of a wearer's foot and forming a free-standing generally
10 L-shaped bladder, said foot portion in fluid communication and integral with said sole
portion; wherein, compression on said sole portion causes an increase in fluid pressure in
said foot portion.

2. The device of claim 1, wherein said sole portion of the bladder is thicker than said
foot portion.

3. The device of claim 2, wherein said sole portion is generally rectangular shaped and
said foot portion is generally trapezoid shaped.

4. The device of claim 1, wherein said resilient bladder has a channel for improving
flexibility and structural integrity of said bladder.

5. The device of claim 4, wherein an initial fluid pressure in said resilient bladder is
20 above ambient pressure.

6. The device of claim 4, wherein said sole portion has a top surface and said foot
portion has an inside surface, and said channel is recessed in the top surface and generally
perpendicular to said inside surface.

7. The device of claim 6, wherein said channel includes a plurality of channels.

8. The device of claim 6, wherein said sole portion further includes a bottom surface, and a contact that connects said bottom surface and said channel.

9. The device of claim 8, wherein said contact is oval shaped.

10. The device of claim 6, wherein said channel extends to and recesses in said inside
5 surface of said foot portion.

11. The device of claim 10, wherein said foot portion further includes an outside surface and a contact connecting said outside surface and said channel.

12. The device of claim 11, wherein said contact is oval shaped.

13. The device of claim 6, wherein said sole portion further includes a bottom surface that
10 has a recess for permitting said resilient bladder to arcuately flex.

14. An article of footwear, comprising:

a sole assembly including a footbed for supporting a wearer's foot, said footbed having a lateral side edge and a medial side edge,

an upper connected to said sole assembly to define an internal volume of the
15 footwear for receipt of a wearer's foot; and

a compensating means for compensating for an increase in said internal volume due to compression of said sole assembly by dynamically decreasing said internal volume in response to said compression, a portion of said compensating means adapted to be positioned underneath a wearer's foot and adjacent said lateral and medial side edges at a
20 metatarsal region of the wearer's foot.

15. The article of footwear of claim 14, wherein said compensating means includes a bladder having a sole portion and a foot portion, and said sole portion being incorporated in said sole assembly, and said foot portion being positioned adjacent said lateral side edge or said medial side edge of said footbed.

16. The article of footwear of claim 15, wherein said foot portion includes a finger-shaped element having a stem portion connected to said sole portion and a bulbous portion connected to said stem portion.

5 17. The article of footwear of claim 15, wherein said foot portion includes a plurality of finger shaped elements connected to said upper, and said finger-shaped elements or said upper is caused to tighten on the wearer's foot when said sole portion is compressed.

10 18. The article of footwear of claim 14, wherein the compensating means includes a bladder having a sole portion positioned underneath the wearer's foot and a strap, said strap being connected to said bladder and extending over a wearer's foot; wherein, said strap is caused to tighten on a wearer's foot when the sole portion is compressed.

19. The article of footwear of claim 18, wherein said bladder further includes a foot portion positioned adjacent said lateral side edge or said medial side edge and said strap is connected to said foot portion.

15 20. The article of footwear of claim 19, wherein compression on said sole portion causes an increase in fluid pressure in said foot portion, said foot portion thereby caused to expand in one direction and contract in another.

21. The article of footwear of claim 18, wherein the foot portion includes an elongate protrusion.

20 22. The article of footwear of claim 21, wherein the elongate protrusion is a plurality of finger-shaped elements.

23. The article of footwear of claim 14, wherein the compensating means includes a bladder having a plurality of elongate, finger-shaped elements that are adapted to extend from said lateral side edge or said medial side edge, over the internal volume to a generally opposite lateral or medial side edge of the footbed.

24. The article of footwear of claim 23, wherein the plurality of finger-shaped elements expand when the sole portion is compressed.

25. A stability device for providing lateral or medial stability to a shoe, the shoe including an upper for covering a portion of a wearer's foot, the upper connected to a sole assembly
5 which includes a footbed for supporting the wearer's foot, the footbed having a lateral edge and a medial edge, the footbed and the upper defining an internal volume of the shoe, the stability device comprising:

a means for compensating including a sealed bladder for containing a fluid, said sealed bladder having a sole portion which is smaller than the wearer's foot and is
10 positioned for compression by a wearer's foot, and a means for tightening connected to said sole portion, wherein said means for tightening responds to the compression of said sole portion by tightening on a top portion of the metatarsal region of the wearer's foot.

26. The stability device of claim 25, wherein said means for tightening includes a material, and said material is connected to said bladder and extends over the metatarsal
15 region of a wearer's foot and is caused to tighten toward the wearer's foot in response to the compression of said sole portion.

27. The stability device of claim 26, wherein said material comprises a strap.

28. The stability device of claim 27, wherein said strap comprises a plurality of straps.

29. The stability device of claim 25, wherein said means for tightening includes a foot
20 portion connected in fluid communication to said sole portion, and said foot portion is caused to expand in response to the compression of said sole portion.

30. The stability device of claim 29, wherein said foot portion is an elongate finger-shaped element adapted to extend over the top the metatarsal region of a wearer's foot.

31. The stability device of claim 30, wherein said elongate finger-shaped element comprises a plurality of finger-shaped elements.

32. An article of footwear, comprising:

a sole assembly having a footbed with a lateral side edge and a medial side edge;

5 said sole assembly having an opening;

a resilient sealed bladder for containing a fluid, said bladder having a sole portion and a foot portion; wherein

10 said sole portion is located in said opening, and said foot portion extends upwardly at said lateral side edge or said medial side edge such that compression of said sole portion causes said foot portion to stiffen.

33. The article of footwear of claim 32, wherein said sole assembly includes a midsole having a contour and said sole portion has a surface generally flush with said contour of said midsole.

15 34. The article of footwear of claim 33, wherein said midsole has a lateral side and a medial side and said bladder has an outer surface generally flush with said lateral side or said medial side.

35. The article of footwear of claim 34, wherein said midsole has a rim that flanks said foot portion.

20 36. The article of footwear of claim 32, wherein said bladder has a surface and the article of footwear is adapted to visibly expose said surface to an exterior of the article of footwear.

37. The article of footwear of claim 36, wherein said bladder has a surface portion that is at least translucent such that an interior of said bladder visible from the exterior of the article of footwear.

38. The article of footwear of claim 32, wherein said opening is adjacent said lateral side edge or said medial side edge.

39. The article of footwear of claim 38, wherein said opening is positioned in a metatarsal region of the sole assembly.

5 40. An article of footwear, comprising:

a sole assembly having a heel region, a toe region, and a metatarsal region, the metatarsal region having an opening;

an upper connected to the sole assembly; and

10 a resilient fluid filled bladder having a sole portion and a foot portion in fluid communication with each other; wherein the sole portion is in the opening of the metatarsal region and the foot portion is connected to the upper.

41. The article of footwear of claim 40, wherein said sole portion has a surface that is generally flush with a surface of said sole assembly.

15 42. The article of footwear of claim 40, wherein said foot portion extends upwardly from said sole assembly and has a top edge that tapers downward toward said toe region.

43. The article of footwear of claim 40, wherein said sole portion is thicker than said foot portion for cushioning, and said foot portion stiffens in response to compression of said sole portion.

20 44. The article of footwear of claim 40, wherein said foot portion comprises at least one finger-shaped element.

45. The article of footwear of claim 44, wherein said at least one finger-shaped element has a bulbous section that simultaneously expands outward and contracts in length in response to an increase in fluid pressure in said foot portion due to compression of said sole portion.

46. The article of footwear of claim 45, wherein said at least one finger-shaped element is connected to a material that tightens on a wearer's foot as said at least one finger-shaped element contracts in length.

5 47. The article of footwear of claim 46, wherein the material that is caused to tighten down on a wearer's foot is a vamp section of the upper.

48. The article of footwear of claim 46, wherein the material is a strap that is connected to a respective at least one finger-shaped element and extends over a portion of the metatarsal region.

10 49. The article of footwear of claim 44, wherein the foot portion comprises a plurality of finger-shaped elements.

50. The article of footwear of claim 32, wherein said foot portion comprises a first foot portion and a second foot portion, both of which extend upwardly from the footbed, wherein said first foot portion is adjacent a lateral side of the footbed and said second foot portion is adjacent a medial side of the footbed generally opposing each other across the metatarsal region of the sole assembly.

15 51. The article of footwear of claim 50, wherein said sole portion comprises a first sole portion and second sole portion, said first sole portion in the opening of said sole assembly and connected to said first foot portion, and said second sole portion is in another opening in said sole assembly and connected to said second foot portion.

20 52. The article of footwear of claim 51, wherein said first and second sole portions and said first and second foot portions are connected to form a U-shaped member having a base of the U-shaped member recessed in the sole assembly.

53. The article of the footwear of claim 51, wherein said first and second foot portions are connected to a material that is caused to tighten on a wearer's foot when said first sole portion or said second sole portion is compressed.

54. The article of footwear of claim 44, wherein the sole assembly has a footbed that has a lateral side edge and a medial side edge, and said at least one finger-shape element is elongate and extends from either the lateral or medial side edge to about the other lateral or medial side edge

55. The article of footwear of claim 51, wherein said at least one finger-shape element expands in response to compression of said sole portion to help hold a wearer's foot on the footbed.

56. The article of footwear of claim 44, wherein said at least one finger-shaped element has a stem portion and an expanding portion, wherein said stem portion expands less than said expanding portion.

57. The article of footwear of claim 44, wherein said at least one finger-shaped element comprises at least three finger-shaped elements.

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